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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,043	01/29/2002	Bruce D. Beneditz	67,036-003 (B05541-AT1)	6584

26096 7590 04/26/2004
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EXAMINER

RIOS CUEVAS, ROBERTO JOSE

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/060,043	BENEDITZ ET AL.	
	Examiner	Art Unit	
	Roberto J Rios	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>01/29/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because it does not clearly identify the mailing address of each inventor. Some inventor's mailing addresses only include a zip code but lack city and state information. Applicant is respectfully requested to provide said information to ensure proper mailing communication in the future. The complete mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Claim Objections

2. Claim 2 is objected to because it should recite: "...which microprocessor is an active control microprocessor ..." in line 4. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 6 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Heckmann et al (US patent 6,525,432).

As per claim 1, Heckmann et al (herein after Heckmann) teach a power distribution assembly comprising: a plurality of power modules for controlling multiple vehicle systems (Figure 2); a first microprocessor having a first serial bus in communication with each of said power modules; a second microprocessor having a second serial bus in communication with each of said power modules independent from said first serial bus (col. 2, line 13; col. 3, line 6; col. 3, line 50); a first power supply (E1) for powering said first microprocessor and each of said power modules; and a second power supply (E2) for powering said second microprocessor and each of said power modules independently from said first power supply (col. 3, line 6; Figure 2).

As per claim 6, Heckmann teaches said first and second microprocessors, said first and second power supplies, and said power modules comprising a master power distribution assembly (col. 2, line 8).

As per claim 11, Heckmann teaches a method of distributing power to a plurality of power modules in a power distribution assembly to control multiple systems comprising the steps of: (a) connecting a first serial bus between a first microprocessor and each of the power modules; (b) connecting a separate second serial bus between a second microprocessor and each of the power modules; powering each of the power modules and the first microprocessor with a first power supply; and (d) independently powering each of the power modules and the second microprocessor with a second power supply (col. 2, line 13; col. 3, line 6; col. 3, line 5; Figure 2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-4 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heckmann in view of Canter (US patent 6,528,901).

As per claims 2 and 12, Heckmann teaches providing a dual-processor redundant arrangement comprising said first and second buses but does not specifically disclose said microprocessors communicating via said separate buses to independently determine which microprocessor is an active control microprocessor and which microprocessor is a back-up control microprocessor. However, Canter teaches a dual-processor redundant arrangement, wherein said microprocessors communicating via said separate buses to independently determine which microprocessor is an active control microprocessor and which microprocessor is a back-up control microprocessor (col. 2, line 1; Figure 1).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heckmann's dual-processor redundant arrangement with Canter automatic protection switching system for the purpose of providing an automatic protection switching between said microprocessor when one of said microprocessor fails.

As per claims 3 and 13, Canter teaches said active control microprocessor transmitting and receiving data while said back-up control microprocessor only receives data until a determination is made by said first and second microprocessors to change said back-up control microprocessor to said active control microprocessor (col. 3, line 29).

As per claim 4, Canter teaches said first microprocessor actively monitoring the health of said second microprocessor via said first serial bus and said second microprocessor actively monitoring the health of said first microprocessor via said second serial bus (Figure 1; col. 2, line 61).

As per claim 14, Canter teaches the step of generating command data only from the active control microprocessor (col. 2, line 30).

As per claim 15, Canter teaches the first microprocessor actively monitoring the health of the second microprocessor via the first bus, the second microprocessor actively monitoring the health of the first microprocessor via the second bus, comparing the health of the active control microprocessor to a predetermined diagnostic and changing the back-up control microprocessor to active control microprocessor if the predetermined diagnostic is not satisfied (col. 3, line 29; Figure 1).

7. Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heckmann in view of Simonelli et al (US patent 5,982,652).

As per claims 5 and 16, Heckmann teaches a dual-processor redundant system controlling a plurality of power modules but does not specifically disclose the power modules independently determining which microprocessor is in control through a

respective control bus. However, Simonelli et al (herein after Simonelli) teach a dual-processor redundant arrangement controlling a plurality of power modules, wherein the power modules independently determine which microprocessor is in control through a respective control bus (col. 4, line 1- col. 15, line 5).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heckmann's dual-processor redundant arrangement with Simonelli's power module individual determining function for the purpose of allowing said power modules to perform an automatic switching between said two microprocessors when one of said microprocessor fails.

8. Claims 7-9 and 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heckmann in view of Bernier (US patent 6,664,656).

As per claims 7 and 17, Heckmann teaches providing a dual-processor redundant arrangement in a master power distribution assembly but does not specifically disclose controlling a remotely located satellite power distribution assembly through said dual-processor redundant arrangement. However, Bernier teaches a vehicle comprising a Main Power Distribution assembly, wherein electrical power is distributed to Remote Power Distribution Units, which contain power controllers and can be remotely turned off and on in response to data bus commands from the system controllers through a redundant data bus communication arrangement (col. 3, lines 10-23).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heckmann's dual-processor redundant arrangement with

Bernier's remotely control redundant function for the purpose of simplifying vehicle wiring.

As per claims 8 and 18, Heckmann teaches a master power distribution assembly comprising a plurality of power modules implementing a dual-processor redundant arrangement but does not specifically disclose controlling a remotely located satellite power distribution assembly through said dual-processor redundant arrangement. However, Bernier teaches a vehicle comprising a Main Power Distribution assembly, wherein electrical power is distributed to Remote Power Distribution Units, which contain power controllers and can be remotely turned off and on in response to data bus commands from the system controllers through a redundant data bus communication arrangement (col. 3, lines 10-23).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heckmann's dual-processor redundant arrangement with Bernier's remotely control redundant function for the purpose of simplifying vehicle wiring.

As per claim 9, Bernier teaches said satellite power modules receiving redundant command data from system controllers (col. 3, lines 10-23).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heckmann in view of Boran (US patent 6,513,055) and Cypress Semiconductor Corporation (Serializing High Speed Parallel Busses to Extend Their Operational Length).

As per claim 10, Heckmann teaches said dual-processor redundant arrangement but does not specifically disclose said microprocessors communicating with a vehicle data bus via a common high bandwidth parallel bus. However, Boran teaches that generally, the transmission of digital data for any significant distance in a vehicle is done serially to reduce wiring cost and weight and for processing circuitry receiving or transmitting the digital data, such as microprocessors, a parallel bus structure is normally used (col. 1, line 19). Moreover, Cypress Semiconductor Corporation (herein after Cypress) teaches that a parallel data bus is a high-bandwidth, high-speed bus that when operated over long distances encounter several data integrity problems which can be solved by converting the parallel streamed data into a series streamed data (pages 1-3).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heckmann's dual-processor redundant arrangement with Boran's and Cypress' parallel data bus for the purpose of allowing high speed processing communication while serially extending said parallel bus over long distances without affecting data integrity.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heckmann in view of Bernier as applied to claim 18 above, and further in view of Morgan et al (US patent 5,764,502).

As per claim 19, the combination of Heckmann in view of Bernier teaches extending the dual-processor redundant arrangement to a satellite power distribution arrangement but does not specifically disclose a satellite power supply being able to

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power said satellite power modules and said master power modules. However, Morgan et al (herein after Morgan) teach a vehicle power distribution arrangement comprising a redundant power distribution arrangement, wherein a plurality of power distribution assemblies are redundantly powered by their own power supply and the power supply of another power distribution assembly (Figure 1).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Heckmann's power distribution arrangement with Morgan's redundant power distribution arrangement for the purpose of providing redundant power supply to all the power distribution assemblies.

11. Art of general nature relating to power distribution and data/power redundant systems has been cited for applicant's review.

Communication with PTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberto Rios whose telephone number is (571) 272-2056. In the event that Examiner Rios cannot be reached, his supervisor, Brian Sircus may be contacted at (571) 272-2800, ext. 36. The fax number for Before-Final communications and After-Final communications is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Roberto J. Rios
Patent Examiner